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ABSTRACT

This study was conducted to find out whether extending the kindergarten day with individualized curricula would produce differences in achievement great enough to warrant the increased cost. Two pilot studies were conducted in this large suburban school district, using kindergartens from four of 17 elementary schools. Two of the schools served middle class families; the other two served lower class families and were eligible to receive Title I funds. Educationally advantaged pupils judged 'least ready' on the basis of standardized test results and teacher ratings were selected for inclusion in the extended day kindergarten and control groups. Both extended day groups participated in the regular kindergarten programs in the morning and received an additional 90-minute period of structured activities in the afternoon. These activities differed according to the needs of the pupils and are described in some detail in the report. Results favoring the experimentals over the controls were apparent at the end of the kindergarten year, most noticeably in the educationally disadvantaged sample. (Author/CS)

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Extending the Kindergarten Day: Does It Make a Difference in the Achievement of Educationally Advantaged and Disadvantaged Pupils?

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The American Association of Elementary-Kindergarten-Nursery Educators, NEA recently recommended that a full-day kindergarten be made available to all children instead of the half-day program so prevalent today. No empirical evidence was cited to support this recommendation. Implementation of this recommendation would necessarily entail higher costs for school districts. The question for one school district thus became, "Would extending the kindergarten day with individualized curricula produce differences in achievement for both educationally advantaged and disadvantaged pupils great enough to warrant the increased cost?" Two pilot studies were conducted in this large suburban school district, using kindergartens from four of seventeen elementary schools. Two of the schools served middle-class families; the other two served lower-class families and were eligible to receive Title I funds.

Educationally advantaged pupils judged "most ready" and educationally disadvantaged pupils judged "least ready" on the basis of standardized tests results and teacher ratings were selected for inclusion in the extended day kindergarten

PS 006942

and control groups. Both extended day groups participated in the regular kindergarten programs in the morning and received an additional 90 minute period of structured activities in the afternoon. These activities differed according to the needs of the pupils and are described in some detail in the report.

Results favoring the experimentals over the controls were apparent at the end of the kindergarten year, most noticeably in the educationally disadvantaged sample. These findings were based on standardized test results and teacher-reported progress. Follow-up test results at the end of the first grade, using two different forms of the Stanford Achievement Test, indicated even greater differences: a) Disadvantaged experimental pupils, as a group, exceeded their controls by nearly three stanine units and, b) Advantaged experimental pupils, as a group, exceeded their controls by more than one grade equivalent unit.

THE EFFECTIVENESS OF EXTENDING THE KINDERGARTEN DAY FOR EDUCATIONALLY DISADVANTAGED AND ADVANTAGED PUPILS[1]

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Historically, kindergarten began as a full-day program. Today, the full-day kindergarten remains an integral part of educational systems in only Europe, Hawaii, and in some districts of New York, Pennsylvania, and other states. Current interest in a return to the full-day program, however, is illustrated by a resolution adopted August, 1970, by the American Association of Elementary Kindergarten-Nursery Educators, NEA. This resolution advocated "a full-day kindergarten be available to all children, organized flexibly to accommodate the needs of kindergarten children and teachers."

There has been considerable discussion about the merits and feasibility of the full, or extended, day kindergarten (Gordon and Robinson, 1968; Berson, 1968; Wann, 1968; Gilstrap, 1970). However, a review of the literature reveals an appalling lack of research on such issues as:

1. Does the extended day kindergarten produce higher achievement than the half day program?

2. Does the extended day program produce higher achievement for different kinds of learners?

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[1]This investigation was supported by Title V, ESEA Grant T5-69-1 from the United States Office of Education.

3. What types of activities are most appropriate for different types of learners in extended day programs?

This study focused on the first two questions. The school district in which this study was conducted wanted to find out whether an extended day program, used with both educationally advantaged and disadvantaged pupils produced, among other things, greater achievement than the regular half-day kindergarten. Their obvious reasoning was that if they could demonstrate significant results they would be in a much better position to recommend that full-day sessions be adopted for the entire district. Their hesitancy to adopt full-day sessions for all kindergarten pupils without first conducting pilot studies was due to the far greater costs incurred by extending the day. They also were aware that the possibility existed of a differential growth in achievement -- i.e., disadvantaged pupils might gain more than advantaged pupils or vice versa. Thus, two pilot studies were conducted using samples from two different populations and with two different sets of activities deemed most appropriate to the needs of the two types of pupils. These two studies are described below, separately.

EXTENDED DAY PROGRAM WITH EDUCATIONALLY DISADVANTAGED PUPILS

Selection of Subjects

Kindergarten pupils were selected from two schools similar in their high proportions of low socioeconomic status families and low achieving pupils. The kindergarten in the school

designated to have the extended day program consisted of approximately 65 children, divided into two sessions, instructed by one teacher and one teacher aide in a single classroom. The design of this study required that a group of children be selected to attend both morning and afternoon kindergarten sessions. Since these children would be added to a class load of 32 pupils, it was felt that no more than six pupils assigned to attend the morning session could also attend the afternoon session. The six children in the extended day program and the seven children in the half-day program were selected using a series of standardized tests and teacher ratings. Those pupils who ranked in the lowest 10 per cent in each school according to their performance on the Peabody Picture Vocabulary Test and the Lee-Clark Readiness Test were selected for the two groups. Low teacher ratings of pupil maturity in personal and social adjustment, response to learning activities as demonstrated in their first month of attendance in kindergarten, and ability to attend to tasks were also used as criteria for selection.

Program Description

The extended day kindergarten was tutorial in nature and was remedial in the sense that it was designed to overcome learning deficits that had been discovered at the beginning of the kindergarten year. The tutorial approach appears to

be the most appropriate type of program for the educationally disadvantaged due to the unique opportunity afforded the teacher for the continual diagnosis of difficulties and readjustment of lessons for individual pupils (Bland, 1970).

During the three hour morning session the children in the extended day program were grouped for instruction together with the regular pupils according to their needs in cognitive, visual, auditory, and motor skill development. The afternoon program for the six children involved in the extended day program began when they ate lunch with the instructional aide. Along with a well-balanced meal, this provided an opportunity for conversation and reflection on the experiences of the morning. Lunch was followed by rest and outdoor play. Skills and concepts presented in the morning session were then reinforced for these pupils in the afternoon program, using different methods. The pupils in the extended day program did not join the afternoon group for additional physical education, outdoor play, music, or art activities. During these times, they were tutored individually or in small groups by the teacher or instructional aide. This extension of the kindergarten day provided for an additional 90 minutes of individualized instruction daily.

The time schedule for the different activities is given below:

8:30 - 8:45	Opening - roll, counting, calendar	
8:45 - 9:15	Small Group Instruction in Language Arts (Teacher and Teacher Aide)	
9:15 - 9:40	Physical Education with Specialist or Outdoor Play, Drinks, Bathroom	
9:40 - 9:50	Milk	
9:50 - 10:15	Story Time, Finger Plays, Rhythms	Music with Specialist or Art
10:15 - 10:30	Television Program	
10:30 - 10:45	Independent Activity Time	
10:45 - 11:15	Small Group Instruction in Math or Science (Teacher and Teacher Aide)	
11:15 - 11:30	Evaluation and Planning for Tomorrow	
11:30 - 12:00	Lunch, Supervised by Teacher Aide	
12:00 - 12:15	Rest on Mats - Supervised by Sixth Grader	
12:15 - 12:30	Outdoor Play	
12:30 - 1:00	Small Group Instruction in Language Skills	
1:00 - 2:00	Individualized Instruction in Visual Motor Skills, Math Concepts, and Auditory and Visual Skills, According to Need.	

Instructional materials used in both programs included the following:

Language Development - Peabody "Language Development Kit Level #1"; Ginn "Readiness Kit"; Learning Time with Language Experience for Young Children; "Story Boards"; and the "Soundie Stories".

Auditory Skills - teacher made games and activities, along with tapes and records for the listening station.

Visual-Motor Skills - parquetry blocks and designs, cubical blocks and patterns; pegboard and bead patterns; Task 1 and Task 2 of Try; and teacher made materials.

Math/Science Learning - Greater Cleveland Math Program, K; Modern School Mathematics, K; numerous manipulative math aides; Science - A Process Approach.

Since the extended day group consisted of five year olds, parents and teachers watched for signs of fatigue, frustration, and waning interest in school. It should be noted that these problems simply did not materialize. As a matter of fact,

PS 006942

responses of the children and their parents toward the extended day program were very positive throughout the pilot study. Out of concern for the total child the interrelationship of cognitive and affective development was also observed. The personal and social growth of each child, as recorded on the kindergarten Progress Report, indicated that increasing competence in academic areas contributed to a more positive self-concept.

Analysis of data

Cognitive skill development was assessed through the use of the Metropolitan Readiness Test and the Stanford Early School Achievement Test. It had been decided, prior to the collection of the data, to first determine whether the groups differed on either of the selection instruments -- i.e., the Peabody Picture Vocabulary Test and the Lee-Clark Readiness Test. If the groups were found to differ significantly on either of these tests, analyses of covariance (Winer, 1967) were to be applied to the comparisons of extended day and regular group means. If no differences between the groups were found on the selection criteria, regular one-way analyses of variance were to be used.

Results

Extended and half-day groups were first compared on all pre-test variables using one-day analyses of variance. There were no statistically significant differences between the groups on either the Peabody Picture Vocabulary Test ($F<1$) or the

Lee-Clark Readiness Test (F = 1.53).

With no significant differences in the two groups at the beginning of the program, post-test variables were then subjected to one-way analyses of variance. The results of all analyses are shown in Table 1.

INSERT TABLE 1 ABOUT HERE

As can be seen, the extended day group exceeded the half-day group in a statistically significant manner on several subtests of the Metropolitan Readiness Test as well as on the Total scores. Specifically, extended day pupils as compared with non-extended day pupils had higher mean scores on Listening, Matching, Alphabet, Numbers, and Total scores. No statistically significant differences were found between the extended and non-extended day groups on any of the subtests or Total scores of the Stanford Early School Achievement Test.

Follow-up data were collected on those ten pupils who remained in the school district until the end of the first grade. The Stanford Early School Achievement Test, Level II was administered to four pupils who had participated in the extended day kindergarten and to the six pupils who had attended the regular half-day kindergarten program. The results of the analyses of variance applied to these follow-up scores are given in Table 2.

INSERT TABLE 2 ABOUT HERE

It may be seen in Table 2 that the extended day group had higher mean stanine scores than the half-day group on four of the six subtests as well as on the Total scores. Specifically, the extended day pupils as compared with non-extended day pupils had statistically significantly higher mean scores on Environment, Math, Word Reading, Sentence Reading, and Total scores. No statistically significant differences were found on Letters and Sounds or Aural Comprehension.

Discussion

The extended day kindergarteners were found to have far exceeded the half-day pupils on all parts of the Metropolitan Readiness Test administered at the end of the kindergarten year except Word Meaning and Copying. Even on these exceptions it was found that the extended day pupils exceeded the non-extended day pupils although not on a statistically significant manner (see Table 1). There were no statistically significant differences found between the groups on the Stanford Early School Achievement Test given at the same time. Again, however, the extended day pupils scored higher than the half-day pupils on all subtests and Total scores of the Standard.

The lack of statistical significance which was found on the five variables of Stanford Early School Achievement Test

and the two subtests of the Metropolitan Readiness Test may well be due to the very small number of pupils used in this study (N = 13). Obviously, it would have been better to carry out this pilot study using a larger sample. However, the constraints of the school situation were such tht this was impossible. It should be noted that the low statistical power of this study points up even more vividly the large differences in achievement between the groups which were found to be statistically significant.

It will be recalled that on every subtest and every total of the post-test variables the means of the extended day pupils were larger than the means for the half-day pupils. This appeared to be a rare occurrence. A sign test (Siegel, 1956) was calculated to determine the likelihood of this occurrence. It was found that the probability of all twelve differences favoring the extended day pupils was less than .0003. This finding again highlights the fact that the extended day pupils achieved more than did those in the regular program.

The effectiveness of the extended day program with educationally disadvantaged pupils is further substantiated in the findings obtained one year after the end of the kindergarten year. Again, the extended-day pupils exceeded the non-extended day pupils on all of the subtests, as well as on the total scores, of the Stanford Early School Achievement Test, Level II with five of the seven comparisons being statistically significant.

EXTENDED DAY PROGRAM WITH EDUCATIONALLY ADVANTAGED PUPILS

Selection of Subjects

The attendance areas of the two schools selected for this pilot study were largely populated by middle income families. The achievement levels of students in both schools fall slightly below district norms or standardized tests. Because no additional staff or aides were to be provided for an extended day program beyond the two regular teachers, only one third of the total enrollment of 78 kindergarteners could be selected for inclusion in the program. The 26 pupils in the extended day and the 29 pupils in the regular programs were selected on the basis of performance on the Preschool Inventory, the Lee-Clark Readiness Test, and teacher ratings of pupil maturity in personal and social adjustment and ability to attend to tasks. Only those pupils who obtained average or above average scores on the tests and who were considered by their teachers to be most ready for inclusion into an extended day program were selected for participation in this study.

Program Description

The extended day program was designed to broaden the kindergarten program through additional time for creative approaches to learning, in-depth pursuits of children's interests, and individualized instruction. The two teachers worked as a team, teaching both extended day pupils and pupils not involved in the study, but each specializing in different areas of the cur-

riculum. Home visits and parental involvement were integral parts of the program. The morning session for the extended day pupils was similar to that of the pupils in the regular half-day program. Lunch, outdoor play, and rest periods were all under supervision of the parents of extended day pupils. These parents were also invited to remain after rest time to observe and assist with the instructional program. As in the study with disadvantaged pupils, the extended day program for advantaged pupils provided for an additional 90 minutes of learning experiences. The additional learning experiences included independent activities in learning centers, special projects in art, music, science, social studies, and dramatics, and individualized instruction in language arts. One hour was spent in small group instruction while the remaining half hour was spent in individualized learning situations. The time schedule for the different activities is given below:

8:30 - 9:00	Opening - roll, pledge, calendar, news, planning the day	
9:00 - 10:00	Small Group Instruction in Math and Science (Teacher A)	
10:05 - 10:25	Music or Physical Education with Special Personnel	
10:25 - 10:45	Outdoor Play, Drinks, Bathroom	
10:45 - 10:55	Quiet Time - Rest, Music Appreciation	
10:55 - 11:30	Story Time, Unit Related Activities, or Art	
11:30 - 12:00	Lunch	
12:00 - 12:15	Outdoor Play	Parent Assistance
12:15 - 12:30	Quiet Time - Rest, Book Browsing, or Story Time	
12:30 - 1:30	Individualized Learning in Language Arts (Teacher B)	
1:30 - 2:00	Independent Activities in Learning Centers or Special Projects in Art, Music, Science, Social Studies, and Dramatics	
2:00 - 3:30	Home Visits, Parent Conferences, Planning and Evaluation, (Teacher A and Teacher B on alternating days)	

Instructional materials used were the same as those described for the disadvantaged sample with the following additions:

Reading - Getting Ready to Read; Scott, Foresman first preprimer (Combs only); Macmillan preprimers and primer (Graham only); experience stories; and a variety of beginning readers.

Auditory Skills - "Listening and Learning"; "The Talking Alphabet"; "Listen and Do".

Math - Let's Begin (Combs only); Distar Arithmetic I (extended day program only), Modern School Mathematics, K and Book I (extended day program only).

Social Science - Schools, Families and Neighborhoods Around the World (extended day program only).

Home visits were made to most of the extended day pupils and were generally preceded by a parent conference. The visit included a home-teaching session that involved younger siblings as well as the kindergarten child. Books or instructional materials were often left in the home for the parent to use in teaching his child.

Analysis of Data

Cognitive skill development and academic achievement were assessed through the use of the Metropolitan Readiness Test, the Stanford Early School Achievement Test, and teacher reported progress based on publishers' tests and classroom performance in reading and math at the end of the year. It had been decided prior to the collection of the data to determine first

whether the extended and non-extended day groups differed on any of the tests used for selection (the Lee-Clark Readiness Test and the Preschool Inventory). If the groups differed significantly on either of these tests, analyses of covariance were to be applied to the comparison of extended day and half-day group means instead of one-way analyses of variance.

Results

One-way analyses of variance were calculated on the pretest means first. It was found that the extended and half-day groups differed significantly on Preschool Inventory scores ($F = 5.40$; $p < .05$) with the extended day pupils ($\bar{X} = 77.52$) exceeding the half-day pupils ($\bar{X} = 74.38$).

Analyses of covariance were then applied to all comparisons of the extended day and half-day groups on Metropolitan Readiness Test and Stanford Early School Achievement Test scores. The results of these analyses are shown in Table 3 below.

INSERT TABLE 3 ABOUT HERE

Inspection of the results reveals that there were no statistically significant differences between the extended day and half-day groups when differences in Preschool Inventory scores were adjusted.

The reading levels at which the groups were performing at the end of the kindergarten year are shown below in

Table 4.

INSERT TABLE 4 ABOUT HERE

Apparently all extended day pupils had finished the readiness and first preprimer levels and were either at the second preprimer or primer levels by the end of the kindergarten year. By contrast, none of the children in the non-extended day program had gone beyond the first preprimer level by the end of the year.

The math achievement of these pupils as reported by their teachers and verified by publishers' tests is given in Table 5 below.

INSERT TABLE 5 ABOUT HERE

Apparently all pupils in the extended day program had gone beyond the mid-point of the math program given in Grade I whereas none of the pupils in the regular half-day program had done so.

Follow-up data were obtained on the 33 pupils who remained in the district until the end of first grade. The Stanford Primary I Battery was administered to 19 pupils who had participated in the extended-day kindergarten and 14 pupils who had attended the regular half-day kindergarten program. The results of the analyses of covariance applied to these follow-up scores are presented in Table 6.

INSERT TABLE 6 ABOUT HERE

Inspection of the results shows that the extended day pupils exceeded the half-day pupils on five of the six subtests of the battery. Specifically, pupils who had participated in the extended-day kindergarten program one year earlier obtained higher mean grade equivalent scores than pupils who attended the regular half-day kindergarten program in Word Reading, Paragraph Meaning, Spelling, Word Study Skills, and Arithmetic.

Discussion

The comparisons made between advantaged children participating in the extended day and half-day programs revealed that no statistically significant differences existed at the end of the kindergarten year on the Metropolitan Readiness Test or on the Stanford Early School Achievement Test when Preschool Inventory differences were adjusted. However, wide differences were found to exist between the groups on teacher-reported progress of children's performance in the reading and math programs. These differences were found to favor the extended day pupils.

These contradictory findings raised some interesting questions. How could one explain why the extended day pupils

were so far ahead of the half-day pupils in reading and math achievement (based on publishers' tests and teacher reports) but were not significantly different on the standardized tests? One reason might have been that these tests are basically designed to assess readiness for first grade work and are to be given during the kindergarten year or at the beginning of first grade. All of the pupils in the extended day program were achieving at first grade levels in reading and math at the time these standardized tests were given. It was, therefore, questionable whether these tests had items which were sufficiently difficult to discriminate among the extended day pupils. An examination of their test scores revealed that all extended day pupils scored within a range of no items wrong to five items wrong on each of the subtests. These data tend to support the hypothesis that these standardized tests might not have enough ceiling to have been appropriate for the extended day pupils.

All pupils in this study scored at average or above average levels on the tests given at the beginning of the kindergarten year. The fact that <u>all</u> of the extended day children, regardless of how they scored on the Preschool Inventory and Lee-Clark Readiness Test at the beginning of the year, were able to achieve at <u>first grade levels</u> in both reading and math would seem to point up the effectiveness of the extended day program.

Another source of data on the effectiveness of the program were parent and teacher reports on their observations of the children. According to these reports all of the children involved in the extended day program demonstrated a very positive attitude toward school and maintained their enthusiasm for learning throughout the year. Parents who had received home visits were very enthusiastic about the program, reported using the activities suggested by the teacher, and recommended that visits in the home become an integral part of the kindergarten program.

A further source of data on the effectiveness of the program were the results of the follow-up testing done one year after the program had ended. On five of the six comparisons, significant differences favoring the extended day pupils were found after the Stanford subtest scores were adjusted for Preschool Inventory differences.

SUMMARY AND CONCLUSIONS

The American Association of Elementary Kindergarten-Nursery Educators, NEA has recommended that a full-day kindergarten be made available to all children instead of the half-day program so prevalent today. Due to the necessity of increasing the number of personnel, space, facilities, and materials presently available, extending the kindergarten day entails higher costs for school districts. One school dis-

trict decided to find out whether extending the school day produced differences in achievement, among other things, high enough to warrant extending the day for all pupils in the district. To determine this, two pilot studies were conducted using kindergartens from four different schools which served lower and middle class families.

In the study comparing the effectiveness of extending the kindergarten day for educationally disadvantaged pupils (N = 13), it was found that achievement, as measured by the Metropolitan Readiness Test, was far higher for extended day than for half-day pupils. The differences in achievement, as measured by the Stanford Early School Achievement Test, Level II, were maintained one year later. In the study concerned with educationally advantaged children (N = 55), it was found that no statistically significant differences existed between the extended day and half-day pupils on standardized achievement measures. However, extended day pupils were reported to have achieved far higher levels in math and reading programs than the half-day pupils. It was suggested that perhaps the standardized tests, both designed to assess readiness for first grade work, were inadequate measures for judging achievement levels of the educationally advantaged extended day pupils. Follow-up data obtained one year later showed that extended day pupils far exceeded the achievement of the

half-day pupils on the Stanford Primary I Battery.

The primary purpose of the extended day program was to attempt to maximize the learning potential of pupils using every available resource. The effect of each one of these resources individually was not a concern of this study. Certainly the effectiveness of the extended day kindergarten programs with both educationally disadvantaged and advantaged learners can be attributed to more than just an additional 90 minutes in the school day. Extension of time does make possible a better balanced program that allows for a variety of approaches to learning and more individual attention at an age when this is very crucial. The nature of the instructional programs, designed according to diagnosed needs and abilities of the learner, is undoubtedly a key factor in the success of these programs. Curriculum planning that takes into account knowledge of the child's home life, made possible through home visits, is also an important consideration.

As a result of these two pilot studies, the school district decided to offer extended day programs to all kindergarten pupils. This decision was put into operation on a partial basis one year after the pilot study was conducted. The following year it was implemented on a district-wide basis.

One final point must be made. If, indeed, the early years are critical ones in the child's intellectual, personal, and social development, what justification, other than financial, can be found for the three-hour double-session kindergarten?

Giving the kindergarten teacher the responsibility for only one group of children would make possible added time for learning through an extended kindergarten day, flexible organization of the program to fit the needs of young children, and effective parent-teacher partnership in the education of the child through home visits and parent involvement in the kindergarten program.

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TABLE 1

Results of Analyses of Variance Comparing the Extended Day and Half-Day Programs For Educationally Disadvantaged Pupils on Tests Administered During the Kindergarten Year

VARIABLE	Extended Day Mean	Control Mean	F	p
PRE-TEST VARIABLES				
Peabody Pict. Voc.				
M.A.	55.50	60.00	<1	n.s.
I.Q.	88.67	91.57	<1	n.s.
Lee-Clark				
Letter Symbols	12.17	7.00	1.99	n.s.
Concepts	14.00	13.86	<1	n.s.
Word Symbols	7.17	5.86	<1	n.s.
Total	34.17	26.71	1.53	n.s.
POST-TEST VARIABLES				
Metrop. Readiness				
Word Meaning	6.67	6.29	<1	n.s.
Listening	10.83	8.86	7.05	.025
Matching	10.17	6.71	5.86	.05
Alphabet	10.33	5.14	17.67	.005
Numbers	13.67	9.57	13.23	.005
Copying	7.67	6.86	<1	n.s.
Total	58.00	43.43	30.46	.005
Stanford Ach.				
The Environment	28.00	26.86	<1	n.s.
Mathematics	16.33	14.71	<1	n.s.
Letters & Sounds	15.17	13.57	<1	n.s.
Aural Comprehension	18.33	15.71	1.69	n.s.
Total	77.83	70.86	1.28	n.s.

TABLE 2

Results of Analyses of Variance Comparing the Extended Day and Half-Day Programs for Educationally Disadvantaged Pupils on the Stanford Early School Achievement Test, Level II

VARIABLE	Extended Day Mean*	Control Mean*	F	p
Environment	5.75	3.33	11.13	<.025
Math	6.75	4.00	16.65	<.01
Letters and Sounds	5.00	3.50	3.20	n.s.
Aural Comprehension	5.50	4.67	<1	n.s.
Word Reading	6.00	3.67	7.83	<.05
Sentence Reading	6.50	3.33	7.92	<.05
Total	6.25	3.33	13.52	<.01

*The means represented are given in stanine units.

TABLE 3

Results of Pre- and Post-Test Measures for Educationally Advantaged Pupils in Extended Day and Half-Day Programs Administered During the Kindergarten Year

VARIABLE	Extended Day Mean*	Control Mean*	F	p
PRE-TEST VARIABLES				
Preschool Inv.	77.52	74.38	5.40	.05
Lee-Clark				
Letter Symbols	21.36	21.72	<1	n.s.
Concepts	17.92	18.31	2.04	n.s.
Word Symbols	14.60	15.79	1.33	n.s.
Total	53.88	55.79	1.54	n.s.
POST-TEST VARIABLES				
Metrop. Readiness				
Word Meaning	12.16	11.14	2.38	n.s.
Listening	11.48	11.31	<1	n.s.
Matching	11.96	11.58	<1	n.s.
Alphabet	15.64	14.93	1.52	n.s.
Numbers	20.20	18.21	3.49	n.s.
Copying	9.92	10.90	<1	n.s.
Total	81.36	78.07	<1	n.s.
Stanford Achievement				
The Environment	36.80	36.76	<1	n.s.
Mathematics	25.56	24.48	1.62	n.s.
Letters and Sounds	26.92	25.86	1.96	n.s.
Aural Comprehension	23.84	22.83	<1	n.s.
Total	113.12	109.93	<1	n.s.

*The means represented are the unadjusted means.

TABLE 4

Numbers of Extended Day and Half-Day Kindergarten Pupils Achieving at Varying Reading Levels

	Readiness Level	Preprimer Level	Second Preprimer Level	Primer Level
Extended Day	-	-	19	7
Non-Extended Day	10	19	-	-

TABLE 5

Numbers of Extended Day and Half-Day Kindergarten Pupils Achieving at Different Math Levels

	Completed Kindergarten Math Program	Beyond Mid-Point of Grade I Program
Extended Day	-	26
Non-Extended Day	29	-

TABLE 6

Results of Follow-Up Measures for Educationally Advantaged Pupils in Extended Day and Half-Day Programs

VARIABLE	Extended Day Mean*	Control Mean*	F	p
Word Reading	2.87	2.11	17.07	<.005
Paragraph Meaning	2.96	2.02	10.66	<.005
Vocabulary	3.33	2.36	3.94	n.s.
Spelling	2.94	1.99	24.15	<.005
Word Study Skills	4.03	2.21	14.69	<.005
Arithmetic	2.95	2.11	25.33	<.005

*The means represented are the unadjusted means reported in grade equivalent units.